

REMARKS

Applicants, their principal representatives in Germany, and the undersigned have carefully reviewed the second, non-final Office Action of October 3, 2003 in the above-identified U.S. patent application, together with the prior art references cited and relied on by the Examiner in the rejections of the claims. In response, the claims of the application have been amended a second time in an effort to more clearly patentably define the subject invention over that prior art. It is believed that the claims now pending in the subject application are patentable over the references cited and relied on by the Examiner. Reexamination and reconsideration of the application, and allowance of the application, and allowance of the claims is respectfully requested.

The subject invention is directed to a cylinder or roller that is intended for use in a printing press. In particular, the cylinder, as recited in currently amended claim 15 is adapted for use for conducting ink in a printing press. The cylinder includes a base body with an outer circumference. A plurality of spiral shaped strips are situated on the base body outer circumference. An outer body is supported by the spiral shaped strips. The outer body is very thin and is not self-supporting. It includes inner and outer circumferential surfaces. The plurality of spiral shaped strips define a multiplex-threaded spiral shaped conduit on the cylinder base body outer circumference. The inner surface of the cylinder outer body and the multiplex threaded spiral shaped conduit defined by the spiral shaped strips, define a plurality of separate spiral-shaped flow paths. Each one of those spiral-shaped flow paths is provided with a separate

tempering medium supply and removal path. The purpose of the present invention is to provide a cylinder which is able to quickly change the surface temperature of the outer cylinder body in response to various production requirements. The cylinder of the present invention also provides a very uniform temperature profile across the outer surface of the cylinder outer body. This is a function of the large number of flow conduits and the thin wall thickness of the cylinder outer body.

In the second, non-final Office Action of October 3, 2004, claims 15-34 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 17-48 of co-pending application No. 10/089,070. It is noted that the '070 application has been allowed and that the issue fee has been paid. As indicated in the prior Amendment, the undersigned will submit a suitable Terminal Disclosure, and will pay the fee associated therewith upon the indication of allowable subject matter in the subject application.

Claims 15, 16, 25 and 27 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent No. 2,875,985 to Hold. Claims 17-20, 33 and 34 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hold. Claims 21-24, 26, 28, 30 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 5,595,115 to Rau et. al. Claims 29 and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hold in view of Rau et. al.

Initially, it is to be noted that claims 21-24, 26, 28, 30 and 32 have been cancelled. This cancellation renders moot the Examiner's rejection of these claims.

Claims 16, 19 and 20 have also been cancelled. Their rejections are also thus rendered moot by their cancellations.

Turning initially to the rejection of claim 15 as being anticipated by Hold, that claim has been amended a second time in a further effort to set forth the patentable features of the subject invention. It is believed that currently amended claim 15 is neither anticipated by nor rendered obvious over the Hold patent.

In Hold there is shown a heat exchange roll that is intended for use in calendering plastics or in rolling thin sheets or films of metals or other materials. While Hold shows only one roll, in calendering, it is typical that two rollers are used and that the material, such as thin sheets of metal or plastic have their surfaces finished or calendered by being pressed between the two cooperating rollers. In the Hold device, the roller includes a main cylinder or roll body 10. That roll is recited at Column 1, lines 60 and 61 as being a "relatively heavy-walled cylinder open at both ends." Within this relatively heavy-walled cylinder there is situated a relatively light-walled shell 14. That shell 14 is provided with helical ribs or fins 20. The inner shell 14 has a plurality of notches 21 along both of its edges. These form ports at the ends of the inner shell 14. These ports provide communication between the spaces external of end heads 17 and 18, to which the inner shell 14 is formed, and spaces extending generally lengthwise of the shell at its outerside diameter.

Claim 15, as presently amended, recites a cylinder base body with an outer circumference. A plurality of spiral shaped strips are located on the outer

circumference of the cylinder base body. These strips are defined by a multiplex-threaded spiral conduit on the cylinder base body outer circumference. This multiplex-threaded spiral shaped conduit, which is defined by the spiral shaped strips, forms a plurality of separate spiral-shaped flow paths between the cylinder base body and a cylinder outer body. That cylinder outer body has a thin wall thickness defined by an inner surface and an outer surface. The cylinder outer body is not self-supporting and depends on the plurality of spiral shaped strips to support it. The cylinder outer body is also spaced from the spiral shaped conduit by the strips. The result of this construction is the plurality of separate spiral-shaped flow paths. Each of these separate spiral-shaped flow paths is separately supplied with a tempering medium which flows through its own separate flow path and is removed from its separate flow path. The outer shell surface of the cylinder outer body is adapted for conducting printing ink.

In the Hold device, the inner, light-weight shell is essentially a cylinder with widely spaced thin ribs or fins 20. In the subject invention, as recited in claim 15, the strips are formed as part of the base body circumference by the provision of the multiplex-threaded spiral shaped conduit. In Hold, the thin inner shell is not load bearing. Its only purpose is to provide a flow path. In the subject cylinder, as recited in claim 15 the cylinder base body supports the cylinder outer body which itself is not self-supporting.

The purpose of the cylinder of Hold is to exert pressure on a material such as plastic or metal to thereby impart a surface finish to that plastic or metal. A significant

amount of pressure must be exerted to effect the desired calendering or surface finishing. That is why the main cylinder or roll body 10 of Hold is "a relatively heavy-walled cylinder." While that may be appropriate for use in a calendering operation, it is not suitable for use in conducting ink in a rotary printing press. The heavy-walled cylinder of Hold will take a temperature imparted to it by fluid flowing through the flow passages only after a generally lengthy period of time. Once the heavy-walled cylinder of Hold has been brought to a specific temperature, it will be slow to react to any changes. Such a reaction speed is a function of the wall thickness of the heavy-walled cylinder and the amount of flow area provided by the lateral flow paths.

In the subject cylinder, as recited in claim 15, the cylinder outer body is not self-supporting. It has a small wall thickness that is defined by an inner surface and an outer shell surface. The cylinder outer body is thus very quick to adapt to changing temperatures imparted to it by a tempering medium that is caused to flow through the plurality of separate spiral-shaped flow paths that are defined by the multiplex-threaded spiral shaped conduit on the base body circumference. The result is a cylinder of a rotary printing press which is adapted to conduct printing ink that will respond quickly to different temperature demands necessitated by varying ink conducting requirements.

The cylinder of the subject invention, as set forth in currently amended claim 15 also includes separate supply and removal paths for the tempering medium in each of the plurality of separate spiral-shaped flow paths. As may be seen most clearly in Fig. 4, the tempering medium flows in the axial bore 11 and out through the radial bores 14

to a plurality of distributing chambers 16. Each such chamber is associated with a separate one of the plurality of separate spiral-shaped flow paths. Each such flow path terminates in its own separate collecting chamber 18. From there, the tempering medium flows through removal bores 19 to a removal line 13. Again, the result is a cylinder of a rotary printing press which is adapted to conduct printing ink and which will be able to react quickly to varying temperature requirements that may be presented to it by changing ink types and printing processes.

The patent to Hold does not anticipate, or render obvious the cylinder recited in currently amended claim 15. In Hold, the outer cylinder is thick and heavy-walled while the inner shell 14 has fins or ribs 20 that extend away from the shell. In the subject device, the cylinder base body has strips on its surface. In Hold, the helical flow conduits are few in number and are defined by the upstanding ribs or fins. In the subject invention, as recited in currently amended claim 15, there are a plurality of separate spiral-shaped flow paths which are defined by the multiplex-threaded spiral shaped conduit on the cylinder base body outer circumference. The cylinder of claim 15 includes a separate supply and removal means for the tempering fluid for each flow path. In Hold there is no depiction or discussion of such structure. Thus the prior art Hold reference does not anticipate currently amended claim 15.

Hold also does not render obvious the structure of the cylinder for a printing press, as recited in currently amended claim 15. Hold is directed to a pressure exerting roller which is not concerned with quick temperature change response. It would be

clearly contrary to the intent and disclosure of Hold to invert the relative sizes of the outer roller body and inner shell. The shell of Hold is not capable of being load bearing. It is not disclosed as having that capability. It is clear that Hold could not be modified to render obvious currently amended claim 15. It is thus believed that claim 15 is patentable over Hold.

Claims 17, 18, 25, 27, 29, 31, 33 and 34 all depend, either directly or indirectly from believed allowable claim 15. They are also believed to be allowable. With respect to claim 18, there is no teaching or suggestion of the area to volume ratio it recites. That ratio would not be appropriate for Hold. The Hold device does not teach or suggest such a structure. Claims 29 and 31 recite that the cylinder is an inking roller or a screen roller. There is no teaching or suggestion in Hold of such a use. The roller of Hold is used to impart pressure to a metal or plastic, not to transfer in. Claims 33 and 34 recite ratios of wall thickness to length. Again, the modifications that would be required to be made to the Hold device to conform it to these ranges would render it unfit for its intended use. Accordingly, these dependent claims are believed to be allowable.

The secondary reference to Rau, which was applied with Hold in the rejections of claim 29 and 31 is believed not be combinable with Hold. Rau is directed to a printing mechanism with a form cylinder that carries a printing form or a transfer cylinder that carries a transfer form. These forms can be slid onto and off from their supportive cylinders. Rau teaches that at least one of the transfer cylinders, the forme cylinders,

the ink distributing roller and the ink fountain roller should be provided with internal cooling. It does not recite that each of these should be cooled. Also, Rau only notes, at Column 5, line 48 that an "inking mechanism" contains a screen roller. It does not indicate that a screen roller is to be provided with a structure such as recited in currently amended claim 15.

Hold is not combinable with Rau et al. There is no reason why a person of skill in the printing art would look to a patent disclosing a calendering roller for usable teachings. The mere fact that both disclosure rollers is not sufficient.

The several additional newly cited references have been reviewed. Since they were not relied on in the rejections of the claims, no further discussion of them is believed to be required.

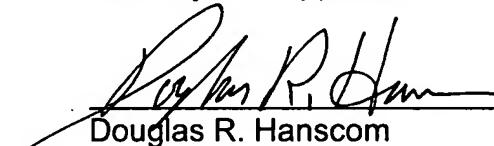
SUMMARY

Claims 15, 18, and 33 have been amended. Claims 16, 19-24, 26, 28, 30 and 32 have been cancelled. Claims 17, 25, 27, 29, 31 and 34 have been carried forward. It is believed that the claims currently pending in the subject application are patentable over the prior art cited and relied on by the Examiner, taken either singly or in combination. Allowance of the claims, and passage of the application to issue is respectfully requested.

Respectfully submitted,

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